

Remarks

Introductory Comments

No Claims have been added or cancelled. No fee is due. If the Office disagrees, it is authorized to charge Deposit Account No. 07-1077 for the amount.

§103 Rejection Using De Vries et al.

The Office has rejected Claims 1-20 as unpatentable in view of U.S. Pat. No. 3,171,827. Applicants have amended their claims to clarify how their invention is not obvious.

The amendments to Claim 1 demonstrate that Applicants have invented a three-dimensional retroreflective article, where both the glass microspheres and the metallic flakes combine to impart retroreflectivity to the article after extrusion or molding. Unobviously, the retroreflectivity resides throughout the bulk of the three-dimensional article after extrusion or molding.

Support for these amendments is found at Page 6, Line 28; Page 5, Line 25; and Page 3, Line 18.

De Vries et al. teach the creation of reflective granules by binding glass spheres, and optionally metal flakes, in a resin and then milling that intermediate product to make the granules "that can be dropped onto highway markers." (Col. 1., Lines 23-24). De Vries et al. do not disclose or suggest that the intermediate product itself can serve as a reflective article. No PHOSITA would be motivated after exposure to De Vries et al. to make a retroreflective article claimed by Applicants, in which the goal of the molded or extruded product is to provide retroreflectivity on all surfaces of the three dimensions and throughout the bulk thereof, if for some reason, the outersurface were scraped away.

Applicants' Claims 1-20, as amended, are patentable over De Vries et al.

§103 Rejection Using Spencer et al.

The Office has rejected Claims 1-20 as unpatentable in view of U.S. Pat. No. 6,525,111. The same amendments to the claims clarify how Applicants' invention is not obvious.

Spencer et al. also disclose an essentially two-dimensional "light-emission-enhancement" material. But it is a paint, not a three-dimensional article which is retroreflective after extruding or molding. Spencer et al. even teach away from any desire to reflect light. From Col. 2, Lines 58-67:

or similar color enhancing additives. The most critical feature of the present light-refractive paint layers is that they
60 scatter light across the paint layer, depending upon their degree of translucency, due to the content of fully-embedded transparent or translucent beads, and do not merely retro-reflect or focus applied light directly back to the source. To the contrary the translucent glass beads refract direct and
65 indirect light in all directions through the paint layer, to enhance the depth and richness of the color(s) of the paint layer or the underlying base layer.

This statement, among others, would not motivate a PHOSITA to use the materials disclosed in Spencer et al. to make a three-dimensional retroreflective article. Because it is a paint, Spencer et al.'s "light-emission-enhancement microbead paint" can be scraped away, removing the purpose of enhancing "the depth and richness of the colors of the paint layer and the underlying base layer."

Spencer et al.'s use of metallic flakes is to enhance color. (Col. 5, Line 45.) The metallic flake are taught to be in a different paint layer from the glass microbeads. Example 1 shows the use of two coatings: a metallic flake base coating and a red tint overcoating containing clear glass beads. (Col. 6, Lines 45-47)

Example 2 does combine the beads and the flakes in a single composition, but the volume of flakes is about 9% of the total volume.

A PHOSITA would not ignore the following statement from Col. 8, Line 36.

-- In all cases, the formed paint layers are not retroreflective. Light applied thereagainst is refracted, scattered and dif-
fused through the layers and enhanced by the colors of the pigments, dyes and flakes contained within the layers to
40 provide a rich, deep appearance to the color of the paint.

A PHOSITA would not be motivated to use Spencer et al. to solve Applicants' problem, making a molded or extruded article be retroreflective on all surfaces and throughout its bulk in the event that the outer surface is scraped away.

Applicants' Claims 1-20, as amended, are patentable over Spencer et al.

Additional Evidence of Patentability

Table 1 of Applicants' Specification at Page 7 reveals the unobviousness of the invention: the addition of a small amount of aluminum flakes to aluminum coated glass microspheres and uncoated glass microspheres provide much more retroreflectivity to the black plastic molded three-dimensional article. This qualitative observation was made by the inventors and the undersigned.

The small amount of metallic flakes is NOT taught by De Vries et al. or Spencer et al. and has been introduced into Claim 1 as a further evidence of patentability.

Imagine a car parked along a city street without street lights and imagine a bicycle rider with a headlamp riding along that that street. A black side mirror housing made from the compound of the present invention would warn that bicycle rider that the mirror is extending from the door of the car. That mirror has retroreflectivity on all surfaces of the three dimensions of its shape and throughout its entire bulk so that no matter what surface is exposed, intentional or unintentional, light shining on that article's surface will retroreflect.

None of either De Vries et al. reflective granules for dropping into highway markers or Spencer's depth and color enhancing paint discloses or suggests Applicants' claimed invention.

Applicants request a Notice of Allowance for all pending claims.

Respectfully submitted by:

Date August 6, 2008

John H. Hornickel
John H. Hornickel
Registration No. 29,393

PolyOne Corporation
33587 Walker Road
Avon Lake, Ohio 44012
Telephone: 440-930-3317
Fax: 440-930-3830
John.Hornickel@PolyOne.com